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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,473	12/29/2004	Tetsuya Kamihara	040302-0427	2688

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FOLEY AND LARDNER LLP
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EXAMINER

SUITTE, BRYANT P

ART UNIT	PAPER NUMBER
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4191

MAIL DATE	DELIVERY MODE
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01/23/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/519,473	Applicant(s) KAMIHARA, TETSUYA	
	Examiner BRYANT SUITTE	Art Unit 4191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05/08/07, 12/29/04</u> . | 6) <input type="checkbox"/> Other: ____. |

FUEL CELL SYSTEM

Examiner: Suitte 10/519,473 Art Unit 4191 January 15, 2008

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is unclear how the nitrogen concentration is monitored inside the recirculation chamber such that a constant nitrogen concentration is achieved.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. The phrase "kept constant" in claim 1 line 11 is a relative term that renders the claims indefinite. The term "kept constant" is not defined by the claim, the specification

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does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For the purpose of compact prosecution the recitation "kept constant" it is interpreted as "within a small range."

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-12 rejected under 35 U.S.C. 102 (e) as being anticipated by Simpson et al. (US 2004/0161657)

Regarding claim 1, Simpson teaches a fuel cell system that generates power from a supplied fuel supply system that utilizes a recirculation system for recirculating unused fuel gas that contains nitrogen inside the recirculation system. Furthermore, the system comprises a purge valve for purging nitrogen contained in the recirculation system, also a controller for adjusting a purge valve to maintain a constant concentration of nitrogen. Simpson teaches of the frequency and flow rate of the purge operation being dependent upon the power of the fuel cell. When the fuel cell is running on high power, which is equivalent to a high hydrogen flow rate and a low nitrogen

concentration, it is desirable to purge a higher portion of anode exhaust, which is equivalent to increasing the valve opening. See paragraph 26.

Regarding claim 2, Simpson teaches a fuel cell system that contains a controller monitors and controls the hydrogen purge device to open and purge the anode exhaust from the fuel cell for a certain period of time and at certain intervals, which is equivalent to increasing the valve opening of the purge valve to increase the flow rate of the fuel gas. See paragraph 46.

Regarding claim 3, Simpson teaches a fuel cell system that adjusts the valve or flow regulating device that permits the flow of hydrogen from the hydrogen source to the fuel cell based upon set points or thresholds of the system. See paragraph 33.

Regarding claim 4, Simpson teaches a sensor that measures the temperature of the fuel gas and adjusts the temperature of the fuel gas to be supplied to the fuel cell system. See paragraph 36 and 37.

Regarding claim 5, Simpson teaches regulators that detect the pressure of the fuel gas in the supply system, which allows for the operation of the fuel cell system with the fuel supplied at different pressures without interrupting the operation of fuel cell system. Therefore, one of ordinary skill in the fuel cell art would recognize that the pressure threshold can be adjusted as needed. See paragraph 33.

Regarding claim 6, Simpson teaches a flow regulating device or valve that permits the flow of hydrogen from the hydrogen source to the fuel cell in response to the pressure drop in the fuel supply line. Therefore, one of ordinary skill in the fuel cell art

would recognize that when the consumption rate of the fuel gas is elevated the pressure in the supply will decrease. See paragraph 33.

Regarding claim 7, Simpson teaches a blower or ejector provided in the recirculation system, to which supply system is connected; as stated in the above paragraph the pressure sensor for detecting supply pressure of the fuel gas supplied to the blower or ejector, wherein the supply rate of the fuel gas is based on the supply pressure detected by the pressure monitors. See paragraph 33.

Regarding claim 8, Simpson teaches a temperature monitoring system and pressure monitoring system that regulate the supply rate of the hydrogen from the hydrogen source to the fuel cell. See paragraph 33, 36 and 37.

Regarding claim 9, Simpson teaches a flow regulating device or valve in the fuel cell system to permit the flow of fuel gas from the fuel source to the fuel cell in response to the pressure drop in the fuel supply line. Therefore, one of ordinary skill in the fuel cell art can infer that the consumption rate of the fuel gas is based on the pressure of the fuel cell system. See paragraph 33.

Regarding claim 10, Simpson teaches a temperature monitoring system upstream of the pressure regulator(s); where a flow regulating device or valve in the fuel cell system to permit the flow of fuel gas from the fuel source to the fuel cell in response to the pressure drop in the fuel supply line. Therefore, it is inherent to one skilled in the art that the consumption rate of the fuel gas is based on the pressure of the fuel cell system of the that detects the temperature of the fuel cell system to permit the flow of

fuel gas from the fuel source to the fuel cell in response to the pressure and temperature of the fuel cell system. See paragraph 33, 36 and 37.

Regarding claim 11, Simpson teaches an ammeter or a voltage monitor, which monitors the electronic signal of the fuel cell system that controls the amount of fuel gas and oxidant to the fuel cell. See paragraph 45, 46, and 50.

Regarding claim 12, Simpson teaches an ammeter or a voltage monitor, which monitors the pressure of the fuel cell, the electronic signal of the voltage monitor controls the speed and controls the hydrogen purge device which controls the amount of fuel gas and oxidant to the fuel cell, which is adjusted occurring to the variation of the pressure in the fuel cell system. See paragraph 45, 46, and 50.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRYANT SUITTE whose telephone number is (571)270-3961. The examiner can normally be reached on Mon - Thur 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah Yuan can be reached on 5712721295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BS

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 4191